

**Draft
Environmental Assessment**

**Assisted Recolonization of Arctic grayling into Rock Creek
in the Upper Big Hole River Basin**

April 2010



***Montana Fish,
Wildlife & Parks***

**Recolonization of Arctic grayling in Rock Creek
Draft Environmental Assessment
MEPA/NEPA CHECKLIST**

PART I. PROPOSED ACTION DESCRIPTION

1. Type of Proposed State Action:

Montana Fish, Wildlife & Parks (FWP) proposes to facilitate recolonization of Arctic grayling into Rock Creek in the Upper Big Hole River Basin. The method will involve using Remote Site Incubators (RSIs) to hatch Arctic grayling eggs from the Big Hole River conservation broodstock directly into Rock Creek. The intent of this project is to assist Arctic grayling in recolonizing Rock Creek.

2. Agency Authority for the Proposed Action:

Montana Fish, Wildlife & Parks (FWP) is required by law to implement programs that manage sensitive fish species in a manner that assists in the maintenance or recovery of those species, and that prevents the need to list species under 87-5-107 or the federal Endangered Species Act. Section 87-1-201(9)(a), M.C.A.

3. Name, Address and Phone Number of Project Sponsor (if other than the agency):

**Jim Magee
Montana Fish, Wildlife and Parks
730 North Montana Street
Dillon, MT 59725
E-mail: mageejames@mt.gov**

4. Anticipated Schedule:

Estimated Commencement Date: May 2010
Estimated Completion Date: December 2015

5. Location Affected by Proposed Action:

The project will occur in Rock Creek, a tributary of the Big Hole River. Rock Creek flows into the Big Hole River approximately 3 miles south of the town of Wisdom (Figure 1). The recolonization reach may include up to 6.5 miles of stream depending on logistics and access through private land.

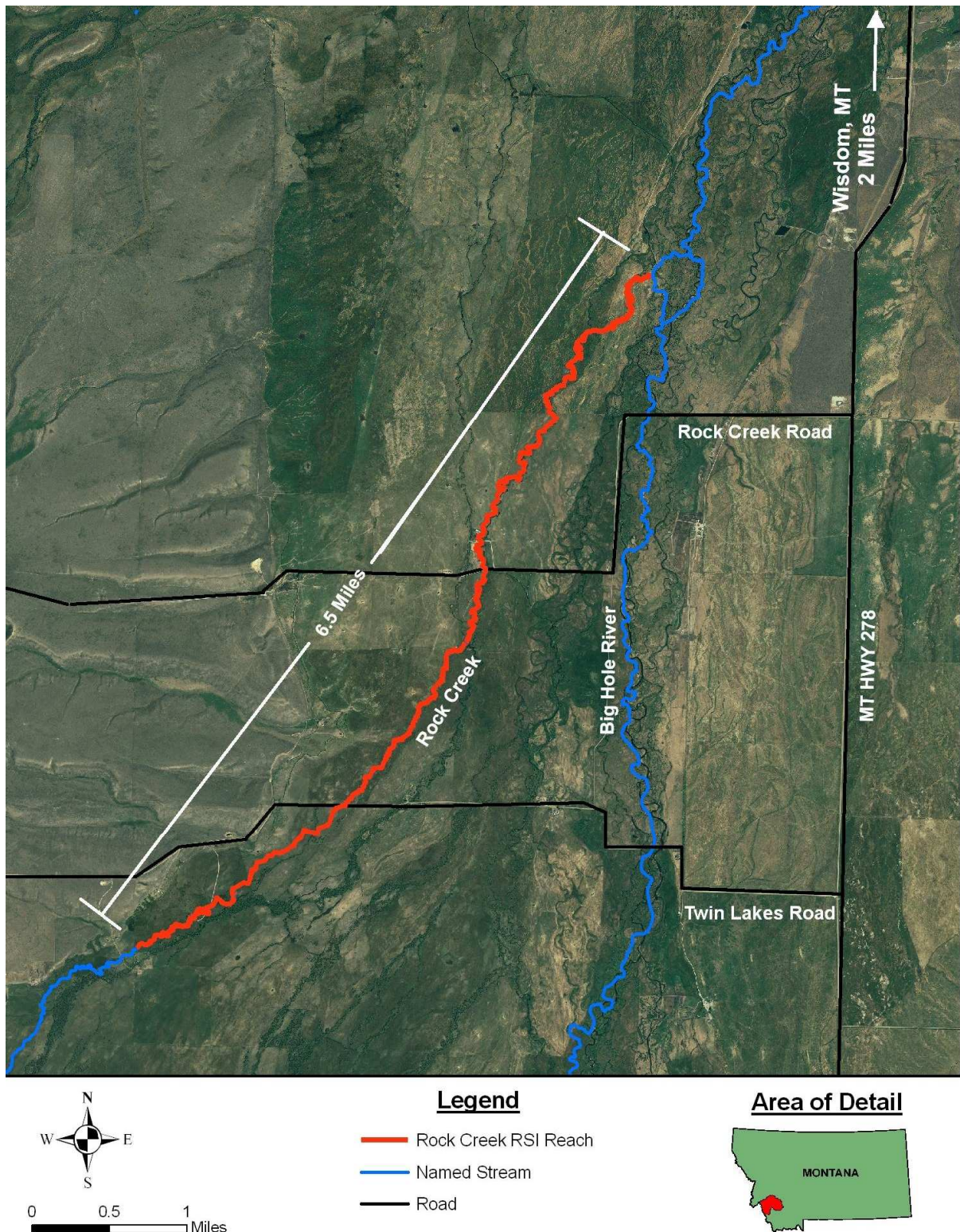


Figure 1. Rock Creek Recolonization Reach extends from the mouth up to approximately 6.5 miles upstream. Remote Site Incubators (RSIs) will be used at various sites in this reach to incubate and develop grayling eggs that will inhabit and imprint in Rock Creek.

6. Project Size—estimate the number of acres that would be directly affected that are currently:

	<u>Acres</u>		<u>Acres</u>
(a) Developed:	0	(d) Floodplain	0
Residential	0		
Industrial	0	(e) Productive:	0
		Irrigated cropland	0
(b) Open Space/Woodlands/Recreation	0	Dry cropland	0
		Forestry	0
(c) Wetlands/Riparian Areas	0	Rangeland	0
		Other	

7. Listing of any other Local, State or Federal agency that has overlapping or additional jurisdiction:

(a) **Permits:** n/a

(b) Funding:

Agency Name: Montana Fish, Wildlife & Parks

Funding Amount: Up to \$10,000

(c) Other Overlapping or Additional Jurisdictional Responsibilities:

Agency Name: United States Fish and Wildlife Service

Type of Responsibility: Oversight in CCAA for Arctic grayling.

8. Narrative summary of the proposed action or project including the benefits and purpose of the proposed action:

The upper Big Hole River Basin supports the last fluvial Arctic grayling population in the lower 48 States. These fish are classified as a “species of special concern” by FWP because of their reduced abundance and diminished distribution in recent decades. The reasons for the decline of Arctic grayling include: habitat degradation, overexploitation, and impacts from non-native species. A variety of impacts have caused Arctic grayling habitat to degrade including stream dewatering, channel modifications, over-grazing, riparian vegetation removal, and irrigation infrastructure modifications.

Arctic grayling utilize tributaries to the Big Hole River for various stages of their life cycle—in particular spawning and rearing—and tributaries are important to the overall status of the Big Hole River Arctic grayling population. Situations exist where grayling have been excluded from tributaries (loss of connectivity with the mainstem river), or where habitat has been degraded to the point where Arctic grayling no longer use the tributaries. Conservation activities in recent years have been directed at improving habitat conditions in tributaries and on the mainstem Big Hole River. In some cases, habitat conditions have improved, but Arctic grayling have not

recolonized the improved habitat; thus, the purpose of this project is to assist with the recolonization of one such tributary, Rock Creek.

Rock Creek historically flowed into the Big Hole River approximately three miles upstream of the town of Wisdom, Montana. Changes to the local irrigation system bisected Rock Creek eliminating the connectivity between this creek and the Big Hole River. Historic grayling population data from the mid-1980's show that Rock Creek once supported over 60 grayling per mile. In 2005, design alternatives were generated to restore the connectivity between Rock Creek and the Big Hole River. The stakeholders in the project decided that the best alternative to restore the connectivity was to reactivate a historic channel braid of Rock Creek. Completion of the project in fall 2006 provided access to approximately five miles of historically occupied grayling habitat.

In addition to reconnecting Rock Creek to the Big Hole River, habitat conditions in Rock Creek have been improved. In 2006, approximately five miles of livestock exclusion fence were installed, one mile of a historic channel braid was restored to reference conditions, the stream habitat was enhanced by increasing the frequency of pool habitat and stabilizing streambanks, and the entire 2.5 miles of the project area were planted with native willow species. Despite the habitat improvements and reconnection of Rock Creek to the Big Hole River, Arctic grayling have not recolonized Rock Creek as of fall 2009.

The proposed action involves using remote site incubators (RSIs) for 3 to 5 years in Rock Creek, followed by a monitoring period to determine success of the effort. Each year 10-20 RSIs will be used to incubate and develop eggs in Rock Creek.

To replicate the genetic composition that represents the fluvial form of Montana Arctic grayling for reintroduction efforts, (and if needed to augment the Big Hole Arctic grayling population), FWP and partners collected Big Hole Arctic grayling gametes and created a captive brood program. To establish this brood stock, Arctic grayling were captured and gametes were collected from the Big Hole River population between 1988 and 1992. Recent genetic analyses of the captive Big Hole River Arctic grayling broodstock have concluded that the captive brood stock adequately represents the genetic composition of the Big Hole River population. Under the proposed action, Arctic grayling gametes from the Big Hole River Arctic grayling broodstock will be used to recolonize Rock Creek. Gametes are typically collected in mid-May and fertilized eggs are transported to Yellowstone Trout Hatchery until they develop to the eye-up stage. At this stage the eggs are transported to the RSIs in Rock Creek. Rate of development is dependent on stream temperatures. Typically grayling will develop from the eyed-egg stage to free swimming fry and move from the RSIs into the stream within 21 days. A fish health assessment is completed prior to transporting any eggs into the hatchery to maintain pathogen-free status.

Genetic samples will be collected from all adult grayling used from the captive broodstock, allowing future studies to determine success and identify progeny produced from the RSIs. Ultimate success of these projects is to have RSI hatched grayling emigrate from the tributaries to the mainstream, mature, and return to the tributary to spawn as adults. If successful, the tributary spawning population will increase the overall population in the Big Hole River system.

Non-native fish are a conservation concern for Arctic grayling in the Big Hole River due to the potential effect of predation and competition. The effect of non-native fish on Arctic grayling status is not fully understood. Introducing Arctic grayling with the use of RSIs will allow for a better understanding of the dynamic between grayling and non-native fish. If the grayling reintroductions are successful without addressing non-native fish, it will provide some short-term localized evidence that the effect of non-native fish is not completely prohibitive of a successful grayling reintroduction. If grayling reintroductions are unsuccessful, and there is evidence to suggest that non-native fish are the cause, FWP will consider actions to address non-native fish in Rock Creek. An additional public scoping process will be required prior to any action to address non-native fish.

9. Alternatives:

Alternative A: No Action

If no action is taken, Arctic grayling may or may not naturally colonize Rock Creek. Rock Creek has been connected to the Mainstem Big Hole for three years, and Arctic grayling have yet to colonize. Not having Arctic grayling established in Rock Creek limits the overall population in the Big Hole River.

Alternative B: Alternative Action, stock juvenile or age-1 Arctic grayling into Rock Creek

Under this alternative, stocking of juvenile or age-1 Arctic grayling would be conducted to establish a population of Arctic grayling in Rock Creek. Past experiences with stocking Arctic grayling have not had desirable results. Oftentimes, the stocked grayling have very low survival rates, emigrate from the stocking location, and may not imprint to the tributary as desired.

Alternative C: Proposed Action

The proposed action is to assist Arctic grayling with recolonizing Rock Creek using RSIs. Historic habitat alterations extirpated Arctic grayling from Rock Creek, but recent restoration work has rectified the issues. If Rock Creek is successfully recolonized with Arctic grayling, and eventually Arctic grayling begin to reproduce naturally in Rock Creek, the entire Big Hole Arctic grayling population will be enhanced. Since the captive broodstock replicates the Big Hole River Arctic grayling population from the late 1980s and early 1990s, the addition of a spawning Arctic grayling population in Rock Creek will increase genetic diversity of Arctic grayling in the Big Hole River basin.

PART II. ENVIRONMENTAL REVIEW

1. Evaluation of the impacts of the Proposed Action including secondary and cumulative impacts on the Physical and Human Environment.

A. PHYSICAL ENVIRONMENT

1. <u>LAND RESOURCES</u> Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated*	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. **Soil instability or changes in geologic substructure?		X				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?		X				
c. **Destruction, covering or modification of any unique geologic or physical features?		X				
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?		X				
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		X				
f. Other:		X				

The proposed project will have no impacts on the physical environment.

2. <u>AIR</u> Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated*	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. **Emission of air pollutants or deterioration of ambient air quality? (also see 13 (c))		X				
b. Creation of objectionable odors?		X				
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				
e. ***For P-R/D-J projects, will the project result in any discharge, which will conflict with federal or state air quality regs? (Also see 2a)		X				
f. Other:						

The proposed project will have no effect on air quality.

3. <u>WATER</u> Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated*	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. *Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?		X				
b. Changes in drainage patterns or the rate and amount of surface runoff?		X				
c. Alteration of the course or magnitude of floodwater or other flows?		X				
d. Changes in the amount of surface water in any water body or creation of a new water body?		X				
e. Exposure of people or property to water related hazards such as flooding?		X				
f. Changes in the quality of groundwater?		X				
g. Changes in the quantity of groundwater?		X				
h. Increase in risk of contamination of surface or groundwater?		X				
i. Effects on any existing water right or reservation?		X				
j. Effects on other water users as a result of any alteration in surface or groundwater quality?		X				
k. Effects on other users as a result of any alteration in surface or groundwater quantity?		X				
l. ****For P-R/D-J, will the project affect a designated floodplain? (Also see 3c)		X				
m. ***For P-R/D-J, will the project result in any discharge that will affect federal or state water quality regulations? (Also see 3a)		X				
n. Other:		X				

The proposed project will have no effect on water resources.

4. VEGETATION Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated*	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?		X				
b. Alteration of a plant community?		X				
c. Adverse effects on any unique, rare, threatened, or endangered species?		X				
d. Reduction in acreage or productivity of any agricultural land?		X				
e. Establishment or spread of noxious weeds?		X				
f. ****For P-R/D-J, will the project affect wetlands, or prime and unique farmland?		X				
g. Other:		X				

The proposed project will have no effect on vegetation.

** 5. FISH/WILDLIFE Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Deterioration of critical fish or wildlife habitat?		X				
b. Changes in the diversity or abundance of game animals or bird species?				X		5a
c. Changes in the diversity or abundance of nongame species?		X				
d. Introduction of new species into an area?		X				
e. Creation of a barrier to the migration or movement of animals?		X				
f. Adverse effects on any unique, rare, threatened, or endangered species?		X				
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?		X				
h. ****For P-R/D-J, will the project be performed in any area in which T&E species are present, and will the project affect any T&E species or their habitat? (Also see 5f)		X				5h
i. ***For P-R/D-J, will the project introduce or export any species not presently or historically occurring in the receiving location? (Also see 5d)		X				
j. Other:		X				

5a. The intent of this project is to increase the abundance of Arctic grayling in the Big Hole River System. Within the Rock Creek drainage, the recolonization of Arctic grayling will mitigate for historic losses of this species from the community; therefore, there is no need to mitigate for this positive change in diversity and abundance of game animals.

5h. Although Arctic grayling have been petitioned for listing under the Endangered Species Act, they are currently not listed. In addition, Arctic grayling are not currently listed as a candidate for listing under the Endangered Species Act.

B. HUMAN ENVIRONMENT

6. <u>NOISE/ELECTRICAL EFFECTS</u> Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Increases in existing noise levels?		X				
b. Exposure of people to serve or nuisance noise levels?		X				
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d. Interference with radio or television reception and operation?		X				
e. Other:		X				

The proposed project will have no effect on the human environment.

7. <u>LAND USE</u> Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				7a
b. Conflicted with a designated natural area or area of unusual scientific or educational importance?		X				
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?		X				7c
d. Adverse effects on or relocation of residences?		X				
e. Other:		X				

7a and 7c. The landowners in the vicinity of the Rock Creek recolonization area are enrolled in the Arctic Grayling Candidate Conservation Agreement with Assurances (CCAA); therefore, if Arctic grayling are listed under the Endangered Species act, the affected landowners in the Rock Creek will not be required to change their operations beyond what has been agreed to under the CCAA site specific plans for each landowner.

8. <u>RISK/HEALTH HAZARDS</u> Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Risk of an explosion or release of hazardous substances (including, but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?		X				
b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?		X				
c. Creation of any human health hazard or potential hazard?		X				
d. ***For P-R/D-J, will any chemical toxicants be used? (Also see 8a)		X				
e. Other:		X				

The proposed project will not create any risk or health hazards.

9. <u>COMMUNITY IMPACT</u> Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				
b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?		X				
d. Changes in industrial or commercial activity?		X				
e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				
f. Other:		X				

The proposed project will have no community impact.

10. <u>PUBLIC SERVICES/TAXES/UTILITIES</u> Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Will the proposed action have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify:		X				
b. Will the proposed action have an effect upon the local or state tax base and revenues?		X				
c. Will the proposed action result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				
d. Will the proposed action result in increased used of any energy source?		X				
e. **Define projected revenue sources		X				
f. **Define projected maintenance costs.		X				
g. Other:		X				

The proposed project will have no effect on public services, taxes or utilities.

** 11. <u>AESTHETICS/RECREATION</u> Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?		X				
b. Alteration of the aesthetic character of a community or neighborhood?			X			11b
c. **Alteration of the quality or quantity of recreational/tourism opportunities and settings? (Attach Tourism Report)			X			11c
d. ***For P-R/D-J, will any designated or proposed wild or scenic rivers, trails or wilderness areas be impacted? (Also see 11a, 11c)		X				
e. Other:		X				

11b. The proposed project hopes to improve the status of Arctic grayling in the Big Hole River system. If successful the aesthetic character of the community is improved through the successful conservation of a native fish species.

11c. Improving the status of Arctic grayling in the Big Hole River basin will improve the quality and quantity of recreational/tourism opportunities and settings, since southwestern Montana is the last place where wild Arctic grayling occur in the lower 48 States.

12. <u>CULTURAL/HISTORICAL RESOURCES</u> Will the proposed action result in:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. **Destruction or alteration of any site, structure or object of prehistoric historic or paleontological importance?		X				
b. Physical change that would affect unique cultural values?		X				
c. Effects on existing religious or sacred uses of a site or area?		X				
d. ****For P-R/D-J, will the project affect historic or cultural resources? Attach SHPO letter of clearance. (Also see 12.a)		X				
e. Other:		X				

The proposed project will have no effect on the cultural or historical resources.

C. SIGNIFICANCE CRITERIA

13. SUMMARY EVALUATION OF SIGNIFICANCE Will the proposed action, considered as a whole:	IMPACT *				Can Impact Be Mitigated *	Comment Index
	Unknown *	None	Minor *	Potentially Significant		
a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources that create a significant effect when considered together or in total.)		X				
b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?		X				
c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?		X				
d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		X				13d
e. Generate substantial debate or controversy about the nature of the impacts that would be created?			X			13e
f. ***For P-R/D-J, is the project expected to have organized opposition or generate substantial public controversy? (Also see 13e)		X				
g. ****For P-R/D-J, list any federal or state permits required.		X				

13d. Depending on the success of this project, similar activities may be initiated to recolonize Arctic grayling into other tributaries; however, Environmental Assessments will be completed prior to initiating these projects.

13e. This project may elicit comments from some members of the public regarding the genetic ramifications of the proposed action on the overall Big Hole River Arctic grayling population; however, since the broodstock being used was developed from the Big Hole River and for this purpose, the comments should be easily satisfied.

PART II. ENVIRONMENTAL REVIEW, CONTINUED

2. Evaluation and listing of mitigation, stipulation, or other control measures enforceable by the agency or another government agency: None

PART III. NARRATIVE EVALUATION AND COMMENT

Addressed in Part I and Part II.

PART IV. PUBLIC PARTICIPATION

1. **Describe the level of public involvement for this project if any, and given the complexity and seriousness of the environmental issues associated with the proposed action, is the level of public involvement appropriate under the circumstances?**

The public will be notified through publication in The Dillon Tribune and the Montana Standard and through contact with the local watershed and sports groups. This EA will also be published on the Montana Fish, Wildlife & Parks web page (<http://fwp.mt.gov/default.html>). Public comments can be given at the FWP web page or in writing to: Pat Flowers, Montana Fish, Wildlife & Parks, 1400 South 19th, Bozeman, MT 59718, or email: pflowers@mt.gov. Comments on the EA will be accepted until 5:00 pm, May 10, 2010. This level of public involvement is believed adequate for the proposed project.

3. **Duration of comment period, if any:**

The public comment period for this proposed action is from DATE OF RELEASE, to 10 May, 2010. Written comments can be mailed to:

Jim Magee
Montana Fish, Wildlife and Parks
730 North Montana Street
Dillon, MT 59725
E-mail: mageejames@mt.gov

PART V. EA PREPARATION

1. Based on the significance criteria evaluated in the EA, is an EIS required? (YES/NO)? No
2. If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action. We conclude from this review that the proposed activities will have no significant impacts based upon the criteria at ARM 12.2.431 to determine the significance of and impact. Therefore, and EIS is not warranted.

3. Name, title, address and phone number of the person(s) responsible for preparing the EA:

Travis Horton, Native Species Coordinator
PO Box 200701
Helena, MT 59620
406-444-3364
thorton@mt.gov

4. List of agencies consulted during the preparation of the EA:

Montana Fish, Wildlife & Parks—Fisheries, Legal, and Administration and Finance Division

United State Fish and Wildlife Service, Montana State Office